

What is claimed is:

1. A method of vaccinating a domestic bird comprising administering by whole-body spray, an effective amount of a vaccine comprising a live avirulent derivative of an enteropathogenic bacteria to the bird.
2. The method according to claim 1 wherein the enteropathogenic bacteria is a *Salmonella*.
3. The method according to claim 2 wherein the spray is administered in a dose of from about  $10^5$  to about  $10^8$  colony forming units of the live avirulent derivative of a pathogenic bacteria.
4. The method according to claim 3 wherein the *Salmonella* is *S. typhimurium*.
5. The method according to claim 4 wherein the *S. typhimurium* is  $\chi 3985$ .
6. The method according to claim 3 wherein the bird is 3 weeks of age or less.
7. The method according to claim 6 wherein the bird is less than one day of age.
8. The method according to claim 7 wherein the bird is a chicken.
9. The method according to claim 7 wherein the administering by spray is followed by administering at least one booster dose of the vaccine.
10. The method according to claim 9 wherein the booster dose of the vaccine is administered in the drinking water.
11. The method according to claim 10 wherein a booster dose is administered 14 days after the administering by spray.
12. the method according to claim 1 wherein the spray is a coarse spray of droplets having diameters in the range of from 50 microns to 150 microns.
13. A method for reducing microbial contamination of poultry comprising immunizing the poultry against a microbial contaminant by whole-body spray administration of a vaccine comprising a live avirulent derivative of a enteropathogenic bacteria.
14. The method according to claim 13 wherein the enteropathogenic bacteria is a *Salmonella*.

15. The method according to claim 14 wherein the spray is administered in a dose of from about  $10^5$  to about  $10^8$  colony forming units of the live avirulent derivative of a pathogenic bacteria.

16. The method according to claim 15 wherein the *Salmonella* is a *S. typhimurium*.

17. The method according to claim 18 wherein the *S. typhimurium* is χ3985.

18. The method according to claim 16 wherein the poultry are less than 104 weeks of age.

19. The method according to claim 16 wherein the poultry are 3 weeks of age or less.

20. The method according to claim 19 wherein the poultry are less than one day of age.

21. The method according to claim 20 wherein the poultry are chickens.

22. The method according to claim 18 wherein the spray administration is followed by administration of at least one booster dose of the vaccine in the drinking water.

23. The method according to claim 22 wherein a booster dose is administered 14 days after the spray administration.

24. The method according to claim 13 wherein the spray administration comprises spraying droplets having diameters in the range of from 50 microns to 150 microns.

25. A method of delivering a protein to a domestic bird comprising administering to said bird in a whole-body spray, an effective amount of a live avirulent derivative of an enteropathogenic bacteria comprising a recombinant gene that encodes for expression, said protein.